U.S. Serial No. 09/929,465 (Attorney Dkt: HALB:020)
Art Unit: 1712

REMARKS

Election/Restriction

Applicants affirm election without traverse of claims 1-58 and 81-85 in a telephone conversation with the Examiner concerning the Examiner's restriction requirement. Non-elected claims 59-80 and 86-89 have been withdrawn from further consideration by the Examiner.

Objections

Applicants acknowledge with appreciation that the Examiner has indicated that claim 4 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Examiner had objected to claim 4 as being dependent upon a rejected base claim. Applicants have accordingly amended claim 4 to be in independent form.

Claim Rejections—35 U.S.C. § 112

The Examiner has rejected claim 39 under 35 U.S.C. § 112, first paragraph, indicating that "Applicants specification fails to teach that the mineral oil comprises less than 1 weight percent aromatics." Applicants have amended the specification to indicate that the mineral oil hydrocarbons may comprise less than 1 weight percent aromatics. Support for this amendment is in claim 39 as originally filed.

The Examiner has rejected claims 42 and 50 under 35 U.S.C. § 112, second paragraph, indicating that the phrase "similar to" in claim 42 "renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention." The Examiner found it unclear in what manner the structures are similar. Applicants have amended claim 42 to provide clarification. With respect to claim 50, the Examiner indicated that use of the term "ester" in the claim was unclear since "glyceride triesters are esters" and he asked whether glyceride triesters alone could comprise the continuous phase. Applicants have amended claim 50 to provide clarification.

Claim Rejections—35 U.S.C. § 102

The Examiner has rejected claims 1, 2, 5-9, 12, 13, 14, 18-22, 25, 26, 81, and 82 under 35 U.S.C. § 102(b) as anticipated by Mueller (U.S. Patent No. 5,869,434). Specifically the Examiner has indicated that "Mueller teaches a drilling fluid which comprises an ester and linear alpha olefin as continuous phase, wherein the ester may be a product such as PETROFREE or rapeseed oil." The Examiner states that "Applicants method of making the ester does not distinguish, since in product by process claims, only the product is examined."

Applicants respectfully traverse the Examiner's rejections because isomerized olefins are different from linear alpha olefins. The Examiner's explanation that, "A linear alpha olefin may be produced by isomerization, thus applicants claims do not distinguish absent further definition of the olefin structure" is not convincing and does not appear to be correct, at least in the context of Applicants' invention. By definition, according to Hawley's Condensed Chemical Dictionary, 11th edition, copy of relevant portions attached, an "olefin" is a "class of unsaturated aliphatic hydrocarbons having one or more double bonds" and "isomerization" is a "method used in petroleum refining to convert straight-chain to branched-chain hydrocarbons or alicyclic to aromatic hydrocarbons" Thus, a "*linear*, alpha olefin is a "straight-chain" and not "isomerized" according to standard definitions and meanings for these terms. Having a double bond on the first or "alpha" carbon does not mean that the linear alpha olefin is "isomerized" and in fact its "linear" structure is contrary to it. Further, Applicants have stated on page 2 at line 21 and page 5 at line 8 of their specification that the olefins in their invention are "isomerized, or internal, olefins." (emphasis added). "Internal" olefins have their double bonds in positions other than the alpha position.

The Examiner has rejected claims 50-55, 57, 58 and 85 under 35 U.S.C. § 102(e) as being anticipated by Mueller (U.S. Patent No. 6,165,946), citing Example 13 in which the Examiner states "Mueller teaches a drilling fluid which comprises esters of 2-ethylhexanol alcohols and rapeseed oil." Applicants note for clarification, however, that this Mueller '946 patent relates "to a process for facilitating the disposal of flowable and pumpable working fluids based on emulsifier-containing w/o invert emulsions and for the simplified cleaning of solid surfaces soiled therewith using water-based washing aids."

(Col. 1, lines 10-16). The Mueller '046 further characterizes the invention discussed therein as that in which "disposal and cleaning are carried out at temperatures in and/or below the phase inversion temperature range." Col. 8, lines 42-45. The example 13 in Mueller cited by the Examiner provides an invert emulsion mud using rapeseed oil as a triglyceride of natural origin in a mixture of 1 part by weight rapeseed oil and slightly more than 4 parts by weight of the ester oil OMC 586 as the oil phase." Col. 31, lines 19-24. OMC 586 is said to be "an ester mixture of substantially saturated fatty acids based on palm oil and 2-ethyl hexanol which, for by far the most part, goes back to C_{12-14} fatty acids." Col. 22, lines 15-18. Applicants have amended independent claim 50 to specify specific oils and have excluded rapeseed oil. Applicants have deleted claim 52 to avoid duplication with amended claim 50.

The Examiner has rejected claims 1-3, 5-9. 12-22. 25-28, 30-33, 36-38, 43, 44, 48-54, 54[sic], 57, 58, 81-85 under 35 U.S.C. § 102(e) as being anticipated by Patel (United States Patent Application Publication No. US 2001/0009890 A1). The Examiner has indicated that "Patel teaches a drilling fluid which comprises esters and an C16-18 isomerized olefin (see examples)" and that "Patel further teaches the combination of various esters and hydrocarbons such as mineral oils (see claims 1 and 9)." The Examiner states that "Such mineral oils would comprise paraffins according to the present invention."

Applicants respectfully traverse the Examiner's rejections based on Patel because Patel's teachings are directed to an ester based synthetic drilling fluid and a hydrocarbon under conditions of "negative alkalinity." [¶¶ 11, 40] Applicants' invention does not require "negative alkalinity."

Claim Rejections—35 U.S.C. § 103

The Examiner has rejected claims 1, 10, 11, 14, 23, 24, 38-42, 45-47, 50, 54-56, 81, 82, 84, and 85 under 35 U.S.C. § 103 as obvious from Patel. The Examiner states that, "Patel teaches a drilling fluid which comprises esters and an C16-18 isomerized olefin (see examples)." Further, the Examiner states that Patel "teaches the combination of various esters and hydrocarbons such as mineral oils (see claim 1 and 9)." The Examiner indicates that such mineral oils would contain paraffins. The Examiner admits

that Patel differs from the present invention in that "the use of 2-ethylhexanol is not disclosed, and the specific composition of the mineral is not disclosed." However, the Examiner considers that the use of 2-ethylhexanol would be obvious to one of ordinary skill in the art given the teaching of Patel that alcohols of C1-12 length may be used in the formation of the esters (claim 1). Further, the Examiner indicates that the use of low aromatic mineral oils comprising paraffins and olefins of low carbon chain length would be an obvious variation to one of ordinary skill in the art to protect the environment.

Applicants respectfully traverse the Examiner's arguments respecting obviousness from Patel. Patel teaches in paragraph 31 that esters that may be used in the practice of the Patel invention "do not show the same in-use behavior as the ester based drilling fluids reported prior to the present invention." Patel explains further in paragraph 31 that:

> In practical application, the esters of C.sub.1 to C.sub.12 alcohol and C.sub.8 to C.sub.24 monocarboxylic acid undergo hydrolysis in the presence of hydroxide ion (OH.sup.-), resulting in the formation of the corresponding alcohol and carboxylic acid. The formation of acid in conventional ester based drilling fluid is of great concern because such fluids have an alkaline reserve which is chemically neutralized by the acids thus destabilizing the invert emulsion drilling fluid. Further the acid in the presence of lime may form a calcium soap which further promotes the adverse effect on rheology of the invert emulsion. The hydrolysis reaction is reported to be the primary reason for the careful selection of esters that are either thermodynamically or kinetically stable with regard to the hydrolysis reaction.

Patel goes on in paragraph 32 to teach that in his invention the hydrolysis of the ester is greatly reduced by substantially eliminating the source of hydroxide ion, "i.e., the alkaline reserve." Patel then teaches in paragraph 33 that the choice of esters which may be used in the invention may be selected from the general class of reaction products of monofunctional carboxylic acids with monofunctional alcohols. Patel indicates that C.sub.8-C.sub.24 carboxylic acids should be predominantly used and these may be derived from unbranched or branched hydrocarbon chains, preferably linear chains and may be saturated, monounsaturated or polyunsaturated. . . ."

Applicants respectfully submit that although the Examiner views it obvious from Patel to use the drilling fluids claimed by Applicants, Applicants' drilling fluids as claimed would at best only be "obvious to try," and thus such claims can not meet the

requirements for invalidity due to obviousness. Patel's teachings do not disclose Applicants' drilling fluids or suggest that Applicants' drilling fluids would be effective. Patel's teachings are directed to certain combinations that provide "negative alkalinity" conditions—that substantially eliminate hydroxide ion--which Patel teaches is in distinct contrast to known esters used in drilling fluids. Applicants on the other hand teach that their invention can employ esters that have been known to be useful as drilling fluids—the very type of esters that Patel distinguishes.

The Examiner has rejected claims 27-37 and 83 under 35 U.S.C. 103(a) as being unpatentable over Lin (5569642) in view of Mueller (6165946). Specifically, the Examiner states that Lin teaches the use of a mixture of linear and branched paraffins for use as the continuous phase of a drilling fluid and that the paraffin mixture of Lin may be used in combination with an ester to improve fluid performance or lower costs. The Examiner admits that Lin differs from Applicants' invention in not disclosing an example of such esters. However, the Examiner states that Mueller teaches the use of an ester oil in the drilling fluid of Lin given that Lin teaches that esters may be used to improve performance or lower cost. Applicants appreciate the Examiner's reasoning but respectfully submit that there is no suggestion in Lin or in Mueller as to which esters might be combined with which paraffins for suitability in a drilling fluid. Various art cited by the Examiner indicates that some esters are not effective or can be problematic in a drilling fluid. Consequently, Applicants respectfully traverse these rejections by the Examiner.

Applicants have amended some claims to indicate that the "base" of the drilling fluid "consists essentially of" the specified blend, rather than the "base or continuous phase of the drilling fluid comprises" to clarify that Applicants invention is focused on such blending and blended fluids as the emulsion base and is not meant to encompass or claim all possible drilling fluids that might contain an ester and an olefin or a paraffin in the continuous phase.

Applicants respectfully submit that the claims as amended are now in condition for allowance and Applicants respectfully request the Examiner to allow the application to proceed to issue.

U.S. Serial No. 09/929,465 (Attorney Dkt: HALB:020)
Art Unit: 1712

Respectfully submitted,

Date: April 4, 2003

Karen B. Tripp, Reg. No. 30,452
Attorney at Law
P.O. Box 1301
Houston, Texas 77251-1301
(713) 658-9323 phone
(713) 658-9410 fax
ktripp@tripplaw.com e-mail

c: Craig W. Roddy, Esq.

Hawley's Condensed Chemical Dictionary

ELEVENTH EDITION

Revised by

N. Irving Sax
and
Richard J. Lewis, Sr.

VAN NOSTRAND REINHOLD COMPANY
New York

See diisopropyl fluorophosphate.

Proprietary process for fixed-bed
ization, requiring a non-noble metal
ımed to give high yields of C_8 (xy-
s with low hydrogen consumption
l catalyst regeneration.

ee 2-methylhexane.

AS: 107-83-5. C_6H_{14}.
of branched chain isomers.
olorless liquid, boiling range 54–61C,
5/15.5C), flash p −26F (−32C) (CC).
nercial.
ly flammable, dangerous fire and ex-
, explosive limits in air 1–7%.
. freezing-point depressant.

1-isopropyl-3-methyl-5-pyrazolyl di-
amate.

entification and separation of a pure
which is present in trace amounts in
mixture. A famous instance of this
ation of polonium (1898) and radium
pitch-blende by the Curies by copre-
echniques followed by repeated frac-
allization.

2-amino-3-methylpentanoic acid;
AS: 73-32-5.
H(CH$_3$)CH(NH$_2$)COOH. An es-
no acid, found naturally in the l(+)

Crystals, slightly soluble in water,
luble in alcohol, insoluble in ether.
Hydrolysis of protein (zein, edestin),
of α-bromo-β-methylvaleric acid.
inc, nutrition, biochemical research.

TM for di-n-propyl-6,7-methylene-
thyl-1,2,3,4-tetrahydronaphthalene-
oxylate.
cides.
some.

One of two or more molecules having
number and kind of atoms and hence
nolecular weight, but differing in re-
he arrangement or configuration of
Butanol (C_4H_9OH or $C_4H_{10}O$) and
r ($C_2H_5OC_2H_5$ or $C_4H_{10}O$) have
empirical formulas but are en-
erent kinds of substances; normal
$CH_3CH_2CH_2CH_2OH$) and isobutanol
$(CH_3)_2CHCH_2OH$) are the same kinds of sub-
ffering chiefly in the shape of the mole-
cules: sec-butanol ($CH_3CHOHCH_2CH_3$) exists in two forms, one a mirror image of the other (enantiomer). Isomers often result from location of an atom or group of a compound at various positions on a benzene ring, e.g., xylene, dichlorobenzene. (2) Nuclides, (i.e., kinds of atomic nuclei) having the same atomic and mass numbers, but existing in different energy states. One is always unstable with respect to the other, or both may be unstable with respect to a third. In the latter instance the energy of transformation in the two cases will differ.
See also geometric isomer, optical isomer.

isomerization. A method used in petroleum refining to convert straight-chain to branched-chain hydrocarbons or alicyclic to aromatic hydrocarbons, to increase their suitability for high-octane motor fuels. For examples, butane (a gaseous paraffin hydrocarbon, $CH_3CH_2CH_2CH_3$) can be slightly modified in structure by catalytic reactions to give the isomeric isobutane ($(CH_3)_2CHCH_3$) used as a component of aviation fuel. Similarly, methylcyclopentane can be isomerized to cyclohexane, which is then dehydrogenated to benzene. Isomerization techniques were introduced on large scale during World War II.
See also isomer, chain.

α-isomethylionone. (γ-methylionone). $C_{14}H_{22}O$.
Properties: Slightly yellow liquid, d 0.925–0.929 (25/25C), refr index 1.5000–1.5010 (20C), flash p 217F (102.7C) (TCC), soluble in 5 parts of 70% alcohol. a synthetic product. Combustible.
Use: Floral perfumes, particularly of a violet character; flavoring.

isomorphism. The state in which two or more compounds that form crystals of similar shape have similar chemical properties and can usually be represented by analogous formulas, e.g., Ag_2S and Cu_2S.

"Isonate."[7520] TM for isocyanate foam systems. Available as non-burning, pour-in-place froth, or spray foams.

isonipecaine hydrochloride. See meperidine hydrochloride.

"Isonol C100."[7520] $C_6H_5N[CH_2CH(CH_3)OH]_2$.
An aromatic reinforcing polyol.
Properties: Amber liquid, viscosity (50C) 1000 cp (max), d 1.055 (23C), water content 0.05%. Combustible.
Use: Ingredient of polyurethane foams, coatings,

Properties: Ivory-colored powder, mp 72C, d 0.94. Combustible.
Grade: Refined.
Use: Slip-agent for extrusion of polyethylene, wax additive, ink additive.

olefin. (alkene). A class of unsaturated aliphatic hydrocarbons having one or more double bonds, obtained by cracking naphtha or other petroleum fractions at high temperatures (1500–1700F). Those containing one double bond are called alkenes, and those with two alkadienes, or diolefins. They are named after the corresponding paraffins by adding "-ene" or "-ylene" to the stem. α-olefins are particularly reactive because the double bond is on the first carbon. Examples are 1-octene and 1-octadecene, which are used as the starting point for medium-biodegradable surfactants. Other olefins (ethylene, propylene, etc.) are starting points for certain manufactured fibers.
See also diolefin.

oleic acid. (cis-9-octadecenoic acid; red oil).
CAS: 112-80-1.
$CH_3(CH_2)_7CH{:}CH(CH_2)_7COOH$. A monounsaturated fatty acid, a component of almost all natural fats as well as tall oil. Most oleic acid is derived from animal tallow or vegetable oils.
Properties: Commercial grades: Yellow to red oily liquid, lard-like odor, darkens on exposure to air. Insoluble in water; soluble in alcohol, ether, and most organic solvents, fixed and volatile oils. Solvent for other oils, fatty acids and oil-soluble materials. Purified grades: Water-white liquid, d 0.895 (20/4C), fp 4C, bp 286C (100 mm), 225C (10 mm), refr index 1.4599 (20C), acid value 196–204, iodine value 83–103, saponification value 196–206, flash p 372 (189C), Combustible.
Derivation: The free fatty acid is obtained from the glyceride by hydrolysis, steam distillation and separation by crystallization or solvent extraction. Filtration from the press cake results in the oleic acid of commerce (red oil) which is purified and bleached for specific uses.
Grade: Variety of technical grades, grade free from chick edema factor, USP, FCC, 99+%. A purified technical oleic acid containing 90% or more oleic, 4% maximum linoleic and 6% maximum saturated acids is available.
Use: Soap base, manufacture of oleates, ointments, cosmetics, polishing compounds, lubricants, ore flotation, intermediate, surface coatings, food-grade additives.

olein. (triolein; glyceryl trioleate).
$(C_{17}H_{33}COO)_3C_3H_5$. The triglyceride of oleic acid, occurring in most fats and oils. It constitutes 70–80% of olive oil.
Properties: Yellow, oily liquid; d 0.915; mp −4 to −5C; soluble in chloroform, ether, carbon tetrachloride; slightly soluble in alcohol. Combustible. Impurities: Stearin, linolein.
Derivation: Refined natural oils.
Use: Textile lubricants.

oleoresin. Any of a number of mixtures of essential oils and resins characteristic of the tree or plant from which they are derived. Most types are semisolid and tacky at room temperature, becoming soft and sticky at high temperatures. They have various distinctive odors.
See also balsam, rosin.

oleoyl chloride. (cis-9-octadecenoyl chloride).
$CH_3(CH_2)_7CH{:}CH(CH_2)_7COCl$.
Properties: Liquid, bp 175–180C (3 mm), soluble in hydrocarbons and ethers, reacts slowly with water. Combustible.
Use: Chemical intermediate.

n-oleoylsarcosine.
$C_{17}H_{33}C(O)N(CH_3)CH_2COOH$.
Properties: Amber liquid, d 0.955 (20/20C), refr index 1.4703 (20C), 95% pure. Combustible.
Use: Surfactants.

oleum. The Latin word for oil, applied to fuming sulfuric acid. (Sulfuric acid was originally called oil of vitriol).

oleyl alcohol. (octadecenol). CAS: 143-28-2.
$CH_3(CH_2)_7CH{:}CH(CH_2)_7CH_2OH$. The unsaturated alcohol derived from oleic acid. Clear, viscous liquid at room temperature. Iodine value 88, cloud p −6.6C, bp 333C, fp −75C, d 0.84. Combustible. Impurities: Linoleyl, myristyl, and cetyl alcohols.
Derivation: Reduction of oleic acid, occurs in fish and marine mammal oils.
Grade: Technical, commercial (80–90% pure).
Use: Surfactants, metal cutting oils, printing inks, textile finishing, antifoam agent, plasticizer.

oleyl aldehyde. See octadecenyl aldehyde.

oleylhydroxamic acid. $C_{17}H_{33}CONHOH$.
Properties: Waxy solid, off-white color, d 0.897 (70/25C), insoluble in water, soluble in aqueous potassium hydroxide and organic solvents.

oleyl-linoleylamine. (octadecene-octadecadienylamine).
Properties: Highly unsaturated primary amine,